LANTHANIDE OXIDE DISSOLUTION FROM GLASS SURFACE

Abstract of the Disclosure

A method and product for computer disk drives. Glass substrates are provided having low content of residual polishing particles on the surfaces thereof. An exemplary method includes reduction of residual polishing particle content by immersion of the glass substrate in an acid bath containing nitric acid, hydrogen peroxide and an organic acid having a carboxylic acid group.

SELF-CLEANING COLLOIDAL SLURRY COMPOSITION AND PROCESS FOR FINISHING A SURFACE OF A SUBSTRATE

Abstract of the Disclosure

A self-cleaning colloidal slurry and process for finishing a surface of a glass, ceramic, glass-ceramic, metal or alloy substrate for use in a data storage device, for example. The slurry comprises a carrying fluid, colloidal particles, etchant, and a surfactant adsorbed and/or precipitated onto a surface of the colloidal particles and/or substrate. The surfactant has a hydrophobic section that forms a steric hindrance barrier and substantially prevents contaminates, including colloidal particles, from bonding to the substrate surface. The slurry is applied to the surface of the substrate while a pad mechanically rubs the surface. Subsequent cleaning with standard soap solutions removes substantially all remaining contamination from the substrate surface. In an exemplary embodiment, the slurry is used to superfinish a glass disk substrate to a surface roughness of less than 2 Å, with substantially no surface contamination as seen by atomic force microscopy (AFM) after standard soap cleaning steps.